Name: _____ Date: _____

Indigo: The Leaf That Turns Blue in Air

Circle group

Many blue jeans get their color from a dye that people first took from a plant. The plant is indigo. It is a leafy shrub that grows in warm places. Its leaves look plain and green. But they hold the chemicals that make one of the deepest blues known.

The odd part is how the color is made. A fresh indigo leaf has no blue dye in it. It has a colorless substance instead. To free it, dyers soak the leaves in water. They let the leaves ferment for a time. The water turns a murky yellow-green. Then the dyers stir or beat the liquid so air mixes in.

The dissolved substance meets oxygen. It changes into a blue solid that no longer dissolves. A cloth dipped in the vat comes out green. As air touches it, it slowly turns blue. A dyer who wants a darker blue does not leave the cloth in longer. The dyer dips it again and again. The cloth dries in the air between dips.

Indigo was once a prized trade good. Ships carried it across oceans. Later, chemists learned to make the same blue in factories. Most of the dye used now is made that way. Still, some craft workers grow the plant and dye cloth by hand. They follow the old steps.

Questions

1. What plant gives the old blue dye?

_____

_____

2. What do dyers do to free the dye from the leaves?

_____

_____

3. What color is the cloth when it first comes out of the vat?

_____

_____

4. How does a dyer get a darker blue?

_____

_____

5. Why does the cloth change color after it leaves the vat?

_____

_____

6. Why might a dyer stir or beat the liquid in the vat?

_____

_____

Words to know

indigo: a plant that gives a deep blue dye
ferment: to break down slowly in water with the help of tiny living things
dissolved: mixed into a liquid so that it cannot be seen separately
murky: cloudy and hard to see through
vat: a large container for holding liquid

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Indigo: The Leaf That Turns Blue in Air

Triangle group

Many of the blue jeans in the world get their color from a dye that people first took from a plant. The plant is indigo, a leafy shrub that grows in warm places. Its leaves look plain and green, yet they hold the chemicals that make one of the deepest blues known.

The surprising part is how the color is made. A freshly picked indigo leaf does not contain blue dye. Instead, it holds a colorless substance. To free it, dyers soak the leaves in water and let them ferment for a time. The water turns a murky yellow-green. Then the dyers stir or beat the liquid so that air mixes in.

Once the dissolved substance meets oxygen, it changes into a blue solid that no longer dissolves. A cloth dipped into the vat comes out looking green, but as the air touches it, it slowly turns blue before your eyes. A dyer who wants a darker shade does not leave the cloth in longer. Instead, the dyer dips it again and again, letting it dry in the air between dips.

Indigo was once a valuable trade good that was carried across oceans. Later, chemists learned to make the same blue in factories, and most of the dye used today is made that way. Even so, some craft workers still grow the plant and dye cloth by hand, following the old steps.

Questions

1. What plant gives the old blue dye?

_____

_____

2. What do dyers do to free the dye from the leaves?

_____

_____

3. What color is a cloth when it first comes out of the vat?

_____

_____

4. How do most dyers get a darker shade of blue?

_____

_____

5. Why does the cloth change color after it leaves the vat?

_____

_____

6. Why might a dyer stir or beat the liquid in the vat?

_____

_____

Words to know

indigo: a plant that gives a deep blue dye
ferment: to break down slowly in water with the help of tiny living things
dissolved: mixed into a liquid so that it cannot be seen separately
murky: cloudy and hard to see through
vat: a large container for holding liquid

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Indigo: The Leaf That Turns Blue in Air

Square group

A great many pairs of blue jeans owe their color to a dye that people first extracted from a plant. That plant is indigo, a leafy shrub that thrives in warm climates. Its leaves appear plain and green, yet they contain the chemicals that produce one of the deepest blues ever known.

The remarkable part is how the color is created. A freshly picked indigo leaf does not actually contain blue dye. Instead, it holds a colorless substance. To release it, dyers soak the leaves in water and allow them to ferment for a period of time. The water turns a murky yellow-green. The dyers then stir or beat the liquid vigorously so that air becomes mixed into it.

Once the dissolved substance encounters oxygen, it changes into a blue solid that no longer dissolves. A cloth dipped into the vat emerges looking green, but as the air touches it, it gradually turns blue before your eyes. A dyer who desires a darker shade does not simply leave the cloth in longer. Instead, the dyer dips it repeatedly, letting it dry in the air between dips.

Indigo was once a valuable trade good that merchants transported across oceans. Eventually, chemists discovered how to manufacture the same blue in factories, and most of the dye used today is produced that way. Even so, a few craft workers still cultivate the plant and dye cloth by hand, following the traditional steps.

Questions

1. What plant provides the traditional blue dye?

_____

_____

2. What do dyers do to release the dye from the leaves?

_____

_____

3. What color is a cloth when it first emerges from the vat?

_____

_____

4. How does a dyer obtain a darker shade of blue?

_____

_____

5. Why does the cloth change color after it leaves the vat?

_____

_____

6. Why might dyers stir or beat the liquid in the vat vigorously?

_____

_____

Words to know

indigo: a plant that gives a deep blue dye
ferment: to break down slowly in water with the help of tiny living things
dissolved: mixed into a liquid so that it cannot be seen separately
murky: cloudy and hard to see through
vat: a large container for holding liquid

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Indigo: The Leaf That Turns Blue in Air

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Indigo: The Leaf That Turns Blue in Air

Easier · 220 words · Flesch-Kincaid grade 2.4

1. Indigo, a leafy shrub that grows in warm places.
2. They soak the leaves in water and let them ferment.
3. Green.
4. By dipping the cloth again and again, letting it dry in the air between dips.
5. The dissolved substance meets oxygen in the air and turns into a blue solid.
6. To mix air into it so the dye can change.

Triangle: Indigo: The Leaf That Turns Blue in Air

This passage · 233 words · Flesch-Kincaid grade 5.3

1. Indigo, a leafy shrub that grows in warm places.
2. They soak the leaves in water and let them ferment.
3. Green.
4. They dip the cloth again and again, letting it dry in the air between dips.
5. The dissolved substance meets oxygen in the air and turns into a blue solid.
6. To mix air into it so that the dye can change.

Square: Indigo: The Leaf That Turns Blue in Air

Harder · 240 words · Flesch-Kincaid grade 7.6

1. Indigo, a leafy shrub that thrives in warm climates.
2. They soak the leaves in water and allow them to ferment.
3. Green.
4. By dipping the cloth repeatedly, letting it dry in the air between dips.
5. The dissolved substance encounters oxygen in the air and changes into a blue solid.
6. To mix air into it so that the dye can change.